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Cover: — Carnaval du Québec. This is a drawing of possibly the most expensive ice cube in Canada. The Ice Palace at Place d'Armes, as viewed from one of the Chateau Frontenac ballroom windows. In the background a portion of the Basilique and the old Hotel Normandie, now renovated, to become home of Provincial Tourist Bureau.

REVIEW '67

OUTLOOK '68

The Canadian Economy

Review of 1967

In 1967 Canada emerged from a major economic readjustment. The first two quarters were marked by a slowdown in economic growth, but that slowdown could not be called a recession. In the latter part of 1967 we renewed the expansion that has characterized the Canadian economy in recent years. Canada's economy has followed closely the economy pattern that has emerged in the United States. That country has enjoyed the longest expansion in history: now in December 1967 in its 82nd. month of continuous expansion. In North America the growth in the past year has been somewhat erratic but the direction has been upward. We projected a 7½ to 8 percent growth in Gross National Product (GNP) in 1967. This appeared optimistic a year ago, however, when the figures are all in, it looks as if GNP in 1967 will be up 8 to 8½ per cent in current dollars, of which 4 to 4½ per cent will be increase in volume and the balance, price increases.

The early part of the 1960's was characterized by a low but steady rate of economic growth and relative price stability. However, since 1965 there has been a growing pressure on wages and prices in Canada. This trend continued in 1967, food prices as a broad group leading the way. In the fall of '67 the government moved in with some mild anti inflationary measures. Such steps were not undertaken in the first two quarters because an economic slowdown that was then occurring. The slowdown was characterized by a substantial business adjustment and reduction of investments. However, following the relative strong resurgence of economic activities, in the second half, new price and wage increases suggested to the present government that anti-inflationary fiscal measures on both the income and expenditure sides were necessary.

The employment situation could be described as reasonably satisfactory in 1967. Total employment was up 3½ per cent over 1966, averaging 7,335,000 in the third quarter of 1967. The unemployment rate on an annual basis in 1967 was under 4 per cent. Employment increased most in the service and recreational occupations. However, agricultural employment was 38,000 higher than a year earlier in the third quarter.

In the overall expenditure picture, government spending increased as well as consumer spending on non-durable goods. Expenditures on construction and change significantly from a year earlier. Thus total investment expenditure as a per cent of GNP declined.

The war in Viet Nam, the unsettled situation in the Middle East, the continued unrest in several de-

vloping areas, and the devaluation of the pound sterling have been significant economic factors in 1967 and they shall continue to be important economic factors in 1968. The devaluation of the pound unsettled world prices and undoubtedly will contribute to important adjustments in 1968. However, the above adjustments notwithstanding and all the dire projections about economic slowdown in 1967, Canada's Centennial Year has turned out to be a relatively good one for most Canadians.

Outlook for 1968

In Centennial Year plus one, 1968, we are again optimistic. We project an increase in GNP of greater than 8 per cent, say 8½ per cent, of which 5 to 5½ per cent will be an increase in the volume of goods and services and 3 to 3½ per cent will be an increase in prices. The Minister of Finance in his recent projections is somewhat more conservative: he is suggesting a GNP increase of only 7 per cent. The projection undoubtedly takes into account the expected impact of monetary and fiscal controls that the government has either instituted or anticipates instituting to manipulate the growth of income and prices during the forthcoming year. However, we feel the situation is more bullish than does the Minister of Finance. In part this projection is motivated by observations of the United States economy. Projections there indicate a very strong first half and with a fall election in that country in the offing, their monetary and fiscal managers may be expected to hew to the straight and narrow line of continued economic growth through 1968. War-generated growth would almost be enough to assure a buoyant 1968 south of the border. Our projections concerning the United States economy are predicated on the basis of the continued unsettled world situation and war in Viet Nam. If peace threatens, the economy there and in Canada would certainly face a substantial readjustment.

While the Federal Government has very definitely indicated that total expenditures will not increase in the next fiscal year, we can anticipate that provincial and local government purchases will continue their strong and steady growth. The new federal tax increases will have a dampening effect on personal consumption expenditures in Canada but the overall multiplier effect of prospective increase in personal consumption expenditures, investment expenditures and government durable and non-durable expenditures will result in a respectable increase

in GNP, even if the Federal Government is successful in controlling the growth of its own expenditures. While on the one hand the Federal Government has been moved to control expenditures, increase taxes, and increase the central bank's discount rate, on the other hand it is moving to increase housing starts and housing investment. This cannot help but have an important stimulating effect on the economy if they are at all successful in their efforts. Also, while we do not anticipate foreign tourist expenditures to reach the levels of those obtained in the Centennial Year, we do anticipate a good year in part due to the United States plans to institute travel controls outside North America. We anticipate a spurt in merchandise imports and exports in part attributed to the initiation of the Kennedy Round of tariff cuts. Merchandise exports and imports increased during the past fiscal year and further growth is projected in 1968. The growth in imports will create problems for some Canadian industries, but growth in exports will stimulate certain other Canadian industries.

Status and prospect of Canadian farm industry

World agricultural production in 1967 is expected to increase slightly over the 1966 output. In Canada, however, the gross output of the farm industry might be between 10 to 15 per cent lower than in 1966.

This is mainly the consequence of serious drought conditions in the Prairie provinces, where farmers averted a greater disaster by the application of modern production methods. Cash receipts from farming are expected to be slightly above the record \$4,274 billion of 1966 and the number of commercial farms with sales of \$2,000 per year increased from 259,000 in 1961 to 276,000 in 1966. Table 1 reveals that the main sources of cash income are wheat, cattle, hogs, dairy and poultry. It is a realistic assumption that this distribution will remain for the years ahead. Nevertheless, changes in consumers' income and tastes influence production patterns on farms. Per capita beef consumption increased from 52 pounds to 83 pounds during the past fifteen years and the consumption of chicken and fowl meat is now about 70 per cent more than in 1950.

There was a significant expansion of the application of fertilizers and pesticides all over Canada. Farm wages increased by an average of 8 per cent, i.e. in some areas the

rise was 12 per cent, in others less than 5 per cent. Prices for many purchased inputs advanced, so for machinery, petroleum, steel, aluminium and their products. Consequently the aggregate of operating expenses and depreciation charges is likely to be considerably higher than in 1966. In the face of higher expenses and reduced grain harvest, the net income of the farm industry is expected to be lower, an estimated \$1.6 billion in 1967 compared to \$2 billion in 1966.

The agricultural picture in the past year has generally been a good one. Not as good, of course, for the Western Canadian wheat farmer, but generally improved for those farmers producing milk, dairy products and beef. Poultry producers were hurt in 1967 and indeed as 1967 closed, egg prices were as low as they have been for two years. Also turkey prices were low in the fall of 1967, in part due to the record size of both the Canadian and United States turkey crops. Part of the seeming prosperity of Canadian livestock producers was achieved at the expense of feed grain producers. World and Canadian feed grain prices have adjusted downward in 1967 due largely to the improved supply situation in most of the world's feed grain producing countries and particularly the United States, for in the latter country the agricultural program changed to allow the release of many millions of acres from their soil bank program. The increased production from this acreage plus fortuitous increased production in most of the world's producing areas has substantially enhanced the supply of feed grains, thereby diminishing the returns of Canadian feed grain producers but at the same time reducing the costs of feed grain users: Canada's dairy, beef, hog and poultry farmers. Canada's dairy farmers have received substantial price support for manufacturing milk. Indeed \$120 million appears to be earmarked for direct price support of this segment of the dairy industry. Unfortunately, the output is so small on the supported farms that the contribution to net income has not been great and will not be great in future. The red meat situation improved during the year price — and cost-wise. Feed costs fell somewhat and prices rose roughly \$2 per cwt. Indeed, as the year closed, farm beef cattle prices had risen substantially, in part due to the demand for breeding stock to expand the North American beef herd. During most of the year Canadian cattle markets were on a domestic rather than export basis. That is, the demand for beef in Canada was such that very little needed to be diverted to export markets. Thus

when Canada's beef production is such that only domestic need are met, prices tend to be roughly \$4 higher per cwt than when we are on an export basis. In hogs and poultry we were also on an import basis in 1967 and because this situation prevailed prices, while low, were higher than would have been the case had we been in a difficult supply situation where exports were necessary to clear the market.

The overall situation and outlook for 1968 is clouded, in part due to the potential weakness in world market prices in wheat and feed grains brought about by changes in the United States agricultural program and by bountiful production in the world's producing countries. The wheat situation and the Canadian Wheat Board's reaction to it in the fall of 1967 suggests that Canadian producers may be insulated by direct subsidies from price declines. However, this may maintain only the price of wheat that is marketed under delivery quotas. There is considerable evidence that delivery quotas are not as generous as they have been in recent years. There is more non-Wheat Board grain in the western provinces, and this "free" grain is moving at substantially reduced prices. There are other domestic connotations to the wheat and feed grain situation that may have substantial impacts on Canada's beef and hog industries. When western farmers cannot market their grains as cash grain, they may revert to solving their grain marketing problems by finishing more beef and producing hogs and thereby disrupting the beef and hog prices. It could affect turkey production too. The impacts in these enterprises could be serious, for we have noted above that Canadian farmers of beef, pork and poultry products this year enjoyed relatively strong domestic prices because the market was on an import basis. However, if in 1968 our output of beef, pork and poultry products puts us again on an export basis, prices will fall substantially. We do not feel that the world market situation with respect to wheat and feed grains will improve greatly, thus the feed and livestock sector of the Canadian agricultural economy can expect a worsening of the price picture, but is not likely to occur until the fall of 1968 as far as livestock producers are concerned. As far as feed grain producers are concerned, low prices are now with us and the situation is likely to remain static.

Farm costs in 1967 rose as rapidly on the farm as elsewhere in the economy, roughly 5 to 6 per cent, farm wage rates taking the biggest jump. The projection for the rise in farm costs in 1968 is not as high (3 to 3½

TABLE I
FARM CASH RECEIPTS FROM FARMING OPERATIONS

(millions of dollars)

	1965	1966	% of Total, 1966	First 6 months 1966	1967
Wheat	931	1,003	24	505	607
Barley	99	105	2	48	70
Potatoes, Fruit and vegetables	249	239	6	65	53
Tobacco	88	118	3	68	109
Other field crops	268	310	7	104	108
Total crops	1,635	1,775	42	790	947
Cattle	773	887	21	429	438
Hogs	379	422	10	216	211
Dairy products	560	582	14	275	289
Poultry and eggs	340	392	9	166	190
Other livestock and products	64	60	1	28	28
Total livestock and products	2,114	2,343	55	1,114	1,136
Other	69	156	3	65	59
Total	3,818	4,274	100	1,969	2,142

per cent). This projection is in line with our projection of the general rise in prices in the economy. Prices received by farmers this past year rose. They have not risen as rapidly or as spectacularly as prices in other sectors, but they have risen in nearly all segments of Canadian agriculture. Dairy farmers, beef producers and wheat producers have been the main recipients of price increases in the past year. However, as a group, we can only project price increases for dairy farmers in 1968. There are some other exceptions. Poultry producers undoubtedly will make the necessary supply adjustments in 1968 to bring their production more in line with what consumers will take at reasonable prices, and this supply adjustment should result in higher egg prices as the year advances and higher turkey and poultry meat prices by the fall of 1968. Prices for hogs should hold at present levels until August or September of 1968, at which time increased supplies may have a substantial dampening effect on hog prices. The beef price picture is a little harder to project. Prices for the last two or three months have been higher than we would have projected earlier in part due to the demand for heifers and would be cull cows to build up the North American beef herd. We anticipate that greater numbers of livestock will come out of the feed lots next spring in part due to the build-up last fall by feeders anticipating and realizing lower feed costs. By next fall most of this build-up will be over, unless the world situation vis-a-vis feed

grains weakens further. In any case, at this juncture we are projecting an increase of beef supplies by the fall of 1968 and prices no higher than we have experienced in the fall of 1967. In the longer run, both the hog and beef cattle picture bears serious watching. A deterioration of world grain markets will mean that in Canada these extra feed grains will be marketed through hogs and beef, with the result that Canadian farmers will again be on an export basis and lower prices will result.

Cash receipts are projected to be higher in 1968 than in 1967. Canadian Wheat Board payments will exceed that of the current year and there is a constantly growing market demand for animal products. In this context, however, imports — mainly from the United States — represent strong competition. In the first six months of 1967 the value of live animals imported was \$96 million vs. \$65 million in the first half of 1966. Also, the value of meat and meat products imported rose from \$257 million in the first half of 1966 to \$327 million in the corresponding period of 1967. There is little prospect of a serious upward trend of farm prices unless inflation gets out of hand. On the other hand, the expansion of efficient farming operations continues resulting in higher per unit yields both in crop and animal production. Taking into consideration the interaction of such different factors, we estimate that net farm income in 1968 will be equal or slightly less than in 1967 — namely \$1.6 billion.

Livestock and Meat Situation and Outlook

The livestock situation is clouded, but the overall income position suggests another year like 1967. Milk producers with their cull cows and veal calves will experience better prices and income. Beef cattle producers should be no worse off than in 1968. Those in the feed lot business will at least be comforted by lower feed costs and strength in market prices through the summer of 1968. While hog producers can anticipate at least another year of lower prices, they also have lower feed prices at present and in prospect. However, hog prices have been higher than normally would be expected with the large increase in production that occurred in both Canada and the United States.

Cattle

In 1967 cattle numbers (1,963,000) declined slightly (1½ per cent) from the peak in 1966. Cattle marketings, namely cattle sold on public livestock yards and shipped to packing plants in Canada declined 3.1 per cent in the first nine months of 1967 compared to the same period in 1966. Marketings were down the most in western Canada (8.5 per cent there compared with .2 per cent interest). The export trade of dressed as well as live cattle declined substantially during the year. For instance, in the first nine months exports of feeder cattle to the United States totalled 40,800 in 1967 compared with 151,000 in 1966 and 152,000 in 1965 for the corresponding time period. Exports of slaughter cattle were only 6,700 compared with 32,300 for a year earlier. The situation did not change in the fall months as Canadian prices remained strong and substantial export flows of feeder and/or slaughter cattle did not develop.

Cattle numbers on farms in Canada and the United States peaked in 1965, and there has been a slight downward adjustment since that date, but in the main the adjustment has been at the expense of dairy cattle numbers rather than beef cattle. That is, the reduction in the dairy herd accounted for the decline in cattle numbers in both countries. The nature of the feed grain situation in both countries is such that we do not anticipate any substantial adjustment downward in the beef cow herds of both countries. Indeed, marketings by sex suggest that further expansion is on the way. Continued modifications in the United States agricultural program with respect to wheat and feed grains and modifications in



photograph by Nick Morant courtesy National Film Board

world market prices with respect to feed grains will be expected to exert the kinds of pressures that expand the production of beef cattle and finished beef animals. Thus in the short run, we will have reduced supplies of beef and strengthened prices, and in the longer run increased supplies of beef and decreased prices. Whether these decreased prices will materialize by the fall of 1968 is still a matter of conjecture. In part it depends upon production in the wheat and feed producing areas of the world and in part upon changes in the United States agricultural program and in part upon the reaction of western Canadian farmers to the restriction of their marketing outlets for wheat and feed grains and the decline in prices, particularly for the latter.

Beef prices are, of course, determined by the interaction of the supply of beef available and the demand for beef. The demand for beef is affected by population growth, growth in personal disposable income, the price and supply of alternatives to beef, and consumer preferences for beef. Population in Canada and in North America is increasing at roughly 1.75 per cent per year. Real income is increasing at 4 to 5 per cent per

year. Indeed, we are projecting that it will increase at greater than 5 per cent in the forthcoming year. Real per capita income is increasing at a rate greater than 2 per cent per annum. The combined effect of the strong demand variables will tend to prevent sharp breaks in beef cattle prices in both Canada and the United States. We can anticipate strong support from the demand side in the foreseeable future; however, the supply side will periodically get us into trouble through increased production relative to the demand for beef. The worst that can result would be a year or two of low prices and negligible profits in farm and feed lot beef production. Beef cattle numbers today suggest that the numbers are holding near the peak and thus total beef supplies are not changing appreciably and beef production per capita may be declining. This suggests long-run downward price pressures and that increase in finished cattle prices will come from population growth and consumer demand.

In the coming year we expect a continuance of present beef prices levels for both feeders and finished animals, prices are anticipated to deteriorate seasonably next fall but not before 1967 levels for the same grades.

Calves and Veal

The slaughter calf picture has been changing in Canada as the dairy industry changed structurally. While the slaughter of calves changes from year to year, the market for vealers remains strong. As the beef cattle market strengthens periodically, the slaughter of calves declines. Thus fewer calves were slaughtered this year for veal and veal prices strengthened considerably. More and more calves are destined for feed lots rather than for veal slaughter. The decline in dairy cow numbers has also reduced the availability of veal calves in Canada and in the North American market. We can anticipate that as this type of slaughter is a by-product of the dairy industry and not sustainable as an industry in itself, production will decline as the national dairy herd declines. However, for those farmers in a position to produce vealers or to handle the vealers of others, this enterprise will continue to offer an attractive side line income opportunity if one is in or near centers of concentrated dairy farm production. Veal prices in 1967 were relatively high (\$32 to \$34 in Toronto and Montreal) and we project veal prices in 1968 to remain at or near this level.

Hogs

Hog numbers and hog marketings in Canada jumped very substantially in 1967. In the first nine months of the year carcasses graded increased nearly 21 per cent over the same period a year previous. The domestic disappearance of pork products appears to have increased 19 per cent over the previous year. Production and disappearance in Canada this year constitutes a record. Prices were strong in the first quarter but have gradually declined since that time. The decline has been in response to the large production and marketing of hogs in Canada and the United States. However, our prices have remained for all practical purposes on an "export basis". That is, our prices here have tended to remain higher than those in the United States by the amount of transportation and tariff differential between the two countries. In the United States this year production and marketings were also up 15 to 16 per cent and prices were low.

With such a substantial increase in production and marketing, one would anticipate that prices would be lower than those in the previous year. The fact that hog prices are not substantially lower than they are or are likely to be until August 1968, has been due to the strength of beef prices and the relative scarcity of beef. Hog prices were relatively high in 1965 and 1966. The apparent nature of the hog cycle in recent years suggests two years of high prices followed by two years of relatively lower prices. Thus on this basis, we would expect that 1967 and 1968 would have relatively lower prices than those experienced in the previous two years. However, hog producers in Canada need also to be concerned about feed grain prices, feed grain supplies, and the reaction of western feed grain producers to diminished markets and lower prices. If the present delivery quota situation continues in western Canada, these farmers may use

Graetz Bros.



hogs and feeder cattle as a means of marketing their wheat and feed grains.

The hogs on farms picture indicates that there are 6.2 million hogs on Canadian farms, up 6 per cent from a year earlier (4 per cent in the east, 8 per cent in the west). Farmers have also indicated in their September 1, 1967 quarterly hog survey that fall farrowings may be up 9 per cent (7 per cent in the west, 11 per cent in the east). In the United States, on the other hand, hog numbers were down 2 per cent on the same date, and farmers indicated that they planned to reduce farrowings 1 per cent in the fall and 2 per cent in the winter period. The decline in American production is in response to the lower prices and higher feed costs earlier in the year. While hog prices have not appreciably improved this fall, feed prices have declined, resulting in a substantially improved corn-hog ratio. It is too early to indicate now farmers will respond to this improved corn-hog ratio, but undoubtedly it will bring forth reduced fall marketing of gilts and increased spring farrowings. Thus the hog price picture to the fall of 1968 is not particularly favorable — a continuance of relatively low prices, however feed prices are relatively favourable and this situation is projected to continue — indeed it will in all probability bring forth excessive hog supplies south of the border and thus low prices there again next fall, also Canadian farmers may also expand production to solve their feed grain marketing situation. Thus we project a year of relatively low hog prices in 1968. Canadian prices will be higher than those in the U.S. as we will remain on an "export basis" at least until late fall.

Sheep and Lambs

Sheep and lamb production continues to decline in Canada. However, marketings on public stock yards increased this past year. Part of the increase reflects the further liquidation of the country's sheep and lamb flock. Also, the increase in marketings and slaughter reflects in part the increase in the import of sheep and lambs from the United States for slaughter. The national average price of good lambs remains substantially above the support level of \$18.80 per cwt. During the summer period the average price was \$26.84 in 1967 and \$25.12 in 1966. We do not project any appreciable change in this market: prices are projected to remain firm; nor do we expect that Canadian farmers will respond to the relatively high prices that sheep and lamb producers are

receiving. This industry is projected to decline even further in 1968 and the years ahead.

The Egg and Poultry Meat Situation and Outlook

The poultry meat and egg situation in 1967 has been favourable to consumers and hard on producers. In response to the favorable price and market situation of over a year ago, farmers bountifully increased their production of eggs and poultry meat but consumers could not take the increased supplies at as high a price as was the case in 1966. Egg prices in September of 1967 were 28.3 cents, down over 9 cents from the same period a year earlier and even 3 cents below the 1959 to 1963 average of 31 cents per dozen. Egg marketing at grading stations in 1967 will set a new record.

The expansion of egg production in 1967 reflects the expansion that occurred in layer numbers in the fall of 1966. Farmers were responding to the then high egg prices and registered hatcheries placed over 23.4 million pullet layers in the past year, up nearly 3 million over the same period a year earlier. It is anticipated that by January 1968, pullet layer numbers in Canada will be of the order of 23.2 million, up 10 per cent over a year earlier. Undoubtedly we can expect a lower rate of replacement, but egg marketings during the first half of 1968 will certainly exceed a year earlier levels, and egg prices will be under pressure until the fall of 1968 as supplies will remain excessive relative to the market for them until that time.

With low egg prices this past year, the volume of egg processing operations expanded sharply; indeed it has been the strength of the demand for processing eggs that has held the market up at higher levels than would otherwise have been the case. We anticipate that the demand for processing eggs will be a main factor in egg price determination during much of 1968. Due to the improved and high stock situation for eggs and egg products, we can anticipate that egg prices in 1968 will continue at present low levels until late summer of 1968, then gradually increase to better than 10 cents a dozen over present levels. The average price during the year will certainly not exceed that prevailing in 1967; however the fall of 1968 and the spring and summer of 1969 will see the return again of high prices for producers and consumers.

Production of poultry meat has been expanding almost without let up in recent years. The expansion in 1967 continued but at a slower rate. Poultry meat output reached a new record level of 830 million pounds. This represents a 5 per cent increase over 1966, but the annual average growth rate was 9 per cent during the 1960-65 period.

Consumer acceptance of poultry meats has been gradually changing in North America. Cost-reducing technological changes in poultry production have apparently enabled producers to produce more poultry at lower prices with each passing year. With lower prices consumers have been willing to consume more and more poultry meats, presumably at the expense of red meats and other foods. But rising national and per capita incomes as well as a steady increase in population has contributed substantially to the long run growth in the demand for poultry meat. Economic studies suggest that as long as poultry meat production increases at no more than 3½ per cent per annum, poultry meat prices will stay constant. If annual growth in poultry meat production exceeds 3½ per cent, poultry meat prices will decline. The nature of technological efficiency in the poultry industry is such that profit margins could be maintained with declining prices if production expanded at a 4 to 4½ per cent rate.

The substantial decline in poultry meat prices for both chicken broilers and turkeys in the fall of 1967 will undoubtedly dampen production increases in 1968. The low prices for poultry meats relative to red meats will undoubtedly move oppressive supplies through the market to consumers, enabling the poultry meat industry to expand moderately. In 1968 one can anticipate that poultry meat prices will improve, certainly over 1967 levels, but poultry meat will continue to remain a "best buy" for consumers through much of 1968. The outlook for poultry meat will continue to be intensely competitive. We can anticipate further structural change in the industry, namely a continued trend to fewer but larger producers. Small flock owners in egg production, chicken broiler production and turkeys continue to disappear. Open market selling, particularly in turkeys and chicken broilers, appear to be a risky venture and increasing numbers of birds will be produced under contract. Undoubtedly there will be a continued movement to coordinate production and distribution. Marketing boards are becoming increasingly active in the poultry field. If they are able to effect

market coordination, more stable income for poultry producers may be in prospect.

Dairy Products

Canada has the highest milk prices in the world. This was reported to a recent federal-provincial agricultural conference. As yet the high prices to farmers have not been translated into high net incomes for dairy farmers. Nearly 60 per cent of the 165,000 dairy farmers registered with the Canadian Dairy Commission had production of less than 50,000 pounds of milk in the last year. Thus even with high prices, the gross income of these farmers from milk sales would be exceedingly low. The attrition rate among small dairy farmers in recent years has been exceedingly high. Most of them have found higher paying uses for their labour. But at least one province is encouraging farm settlement based on small dairy herds.

The Canadian dairy herd has been declining for some years and has now stabilized at about 2,700,000 cows and heifers. However, with improvement in the quality of herds and with better production practices total milk production has not followed the trend for cow numbers. Rather it has been fairly stable at 18.0 to 18.5 billion pounds since 1961.

Fluid milk sales account for a little more than 30 per cent of total milk marketings. Prices in this sector are under provincial controls. In many cases these tend to discourage efficient production on farms and clearly discourage efficient and low-cost marketing. On both sides of this sector there are strongly entrenched interest which have been powerful enough to prevent a rationalization of the industry — namely changes which would help efficient farmers and bring lower prices to consumers. The need for a careful review of marketing policies in this sector is suggested by the fact that per capita consumption of milk and cream fell from 405 pounds in 1956 to 313 pounds ten years later.

The sector under the greatest threat is butter. Per capita consumption is again declining, and will likely decline further. Production of factory butter declined in 1967 for the fifth consecutive year. Cheddar cheese production has increased sharply during the 1960's and this more than any other factor has relieved the industry best as it is with sharp declines in per capita butter consumption.

A most notable feature of the Canadian dairy industry is the 60 per cent increase in the production of dry skim milk since the 1955-59 period. This

has coincided with a tendency for farmers to ship whole milk rather than farm separated cream. While there have been troublesome surpluses of dry skim milk from time to time, these should represent no particular difficulty over the near future since the product is exceedingly useful in food assistance programmes for the developing countries.

Dairy product prices to Canadian consumers are high. This reflects the high prices paid to farmers and provincial marketing and price controls. The cost of maintaining the Canadian dairy industry is not only reflected in the high prices to farmers, but also in the fact that butter prices in Canada are roughly double those of the free world market. Add all these together and one finds that Canada pays a very heavy price for maintaining its dairy industry.

The Federal Task Force on Agriculture has before it a very important and exceedingly difficult task in making proposals with respect to the dairy industry. It is to be hoped that body will be able to make recommendations which will lead to strengthening the economic position of the industry. The job is made all the more difficult when account is taken of the fact that the aggregate market for dairy products is declining, and is threatened with more serious reductions. It would appear that nothing short of very large programmes to divert land and other resources from the dairy sector would meet the needs of the next decade. For the immediate future, farmers are well supported by the present federal programme. But this is oriented to the adjustment of the industry so that it can stand on its own feet. It is not an indefinite subsidy programme — nor should it be.

Feed Grains

The world feed grain trade reached a record 44 million metric tons in 1966-67. This represents a sharp increase from the 16 million tons recorded in 1956-57. The bulk of the trade increase comes from corn and sorghum. Barley and oats in world trade have been relatively constant and thus represent a declining share of an increasing total. Canada's internal production of oats and barley have been declining, and exports of oats and barley have declined from 2.1 million tons 10 years ago to 1.2 million in 1966-67. The world and domestic supply situation has been such that prices for feed grains have deteriorated this past year. Canadian farmers have consumed through their livestock operations an all-time high of 17.2 mil-

lion short tons of feed grains, 7 per cent greater than the disappearance of a year previous. Low feed prices and relatively high livestock prices will continue to stimulate the high levels of domestic consumption of feed grains. However, not much in the way of price encouragement for feed grain producers can be predicted from this strong domestic demand for feed grain. The feed grain situation in the United States, particularly with respect to corn and sorghum, is such that we may anticipate further production expansion and world price-dressing impacts from that source. Even in the face of anticipated increasing demands and disappearance of Canadian feed grains and further downward production adjustments in the country, price increases for feed grain producers are not projected or anticipated. Feed grain users, on the other hand, can anticipate another year of relatively low and stable feed grain prices. There will be the normal seasonal increases in prices until the new 1968 crop arrives. Whether prices will be higher or lower in the fall of 1968 depends in part on the bounty of nature in the coming crop season; but even if nature is niggardly in its output in 1968, we do not project substantial feed grain price increases. The world supply situation, particularly in the United States, is such that feed grain prices for the foreseeable future cannot appreciably increase.

If Canada's feed grain producers and indeed its livestock and poultry industry is to remain competitive in world as well as domestic trade the nation is going to have to take a hard look at its policies with respect to feed grains. Our competitive position has deteriorated in part due to the technological changes that reduced the relative costs of producing livestock feeds from corn and sorghum sources. With the use of tariffs and import permits we have effectively prevented our beef, hog and poultry producers from using these low cost grains. In addition we have not promoted or encouraged research and development of high yielding feed barleys and feed wheats. These cereal grains maybe more adjustable for feed production in our climate than is corn. Canadian farmers are patiently waiting for such developments, in the meantime, the removal of tariffs and import quotas would do much to solve the feed cost problem.

Oat prices are expected to range at or about the level of the last crop year. Indeed the new crop in August 1966 averaged 90 cents and in 1967, 91 cents per bushel basis in store Fort William — Port Arthur. While prices

TABLE 2

SUPPLY AND PRICE SITUATION, WHEAT, SELECTED PERIODS,

1955-67

(Crop Year, August 1 to July 31).

Item	Average 1955-56- 1959-60	Average 1960-61- 1964-65	1965-66 (Revised)	1966-67 (Preliminary)	1967-68 (Forecast)
million bushels					
Stocks at August 1	617.3	509.0	513.0	420.1	577.1
Production	465.6	538.2	648.9	827.3	592.9
Imports	0.2	b	b	b	
Total supply	1,083.1	1,047.2	1,161.9	1,247.4	1,170.0
Exports	293.8	407.4	584.9	516.3	
Stocks at July 31	629.8	491.7	420.1	577.1	
Domestic disappearance	159.3	148.2	156.9	154.0	
Farm priced	1.31	1.66	1.68		
dollars per bushel					

Source: Federal-Provincial Outlook Conference, 1967.

b: Less than 50,000 bushels.

c: Excluding imports.

d: Average price received by farmers for all grades and varieties.

have declined 3 to 4 cents since then, it is anticipated that prices will remain at or about 90 cents for the balance of the year.

Barley prices are 6 to 7 cents per bushel lower than a year ago, and it is anticipated that these lower levels will continue, due to competition from alternative feed grains in both the domestic and world markets.

Canadian corn production recorded another gain in 1967. The expected harvest of 72 million bushels represents a 9 per cent increase over a year earlier. However, domestic disappearance exceeds this, the difference being made up by imports from the United States. Corn supplies are very large and adequate in that country, and prices are substantially lower than in Canada. Canadian corn production continues to be protected by restrictive import permits, regulated by the Canadian Wheat Board and by an 8 cents per bushel tariff. The continued denial to the eastern Canadian livestock industry of free access to American corn places a burden on our agriculture and our consumers which must be many times any benefit that might be derived from a tariff on corn. Canadian beef, hog and poultry production are increasingly threatened by the comparative advantage enjoyed by American farmers who depend on corn sorghum. At a time when farm costs are high, would it not be opportune to reduce farm costs by permitting Canadian farmers producing finished cattle, hogs and poultry access to low-cost American feed

grains. The Feed Grain Assistance program continues to gall western Canadian feeders of livestock and poultry. It brings little if any aid to western producers of feed grain, and the Feed Freight Assistance to eastern Canadian farmers may not be adequate compensation for the loss of ready and free access to low-cost United States corn, sorghum and protein concentrates. The Canadian Wheat Board's monopoly powers continue to dictate feed grain prices to eastern Canadian feed grain users, continue to enforce the purchase of only Wheat Board feed grain supplies from the western provinces, and continue to control rigidly the issuance of import permits to all would-be importers of cereal grains into any part of Canada. The regional impact of the Canadian Wheat Board on the agriculture of other parts of Canada is a real problem. The competitive position of our livestock and poultry industries may be at stake.

Wheat

In 1967 Canadian farmers harvested 593 million bushels of wheat which is 28 per cent less than in the previous year. Acreage was slightly higher than in 1966/67, consequently lower unit yields are responsible for the decline. As is known, weather conditions were very unfavourable, for example, between April and August rainfall was 47 per cent normal in Saskatchewan.

The interaction of output reduction and fairly high export volume of 1966/67 resulted in the total supply of 1,170 million bushels for the current crop year. Table 2 reveals the development for the period 1955 to 1967/68.

In assessing the prospect of next year's wheat sales it is important to note that United States' wheat production has increased by 17 per cent to 1,540 million bushels. In Argentina and Australia the harvest might be about the same as in previous years. In other rather small exporting countries, there is no change in output. Turning to the importing countries, the Soviet Union has a fairly good harvest of 3 billion bushels. In the fact of last year's record supply, in that country, it is likely that domestic supplies will meet requirements. In Western Europe the weather was not favourable, however, improved efficiency mitigated the damage and supply has not declined significantly. Eastern Europe had good crops this year obviating their need for wheat imports. There is very little information about the supply situation in Communist China which has a standing contract with Canada for purchase of a minimum 167 million bushels and maximum 280 bushels in the three years that started August 1, 1966. Most recently they ordered 78 million bushels of high grade wheat to be delivered in the first 10 months of next year. Completion of this order brings shipment in the framework of the standing order to 167 million bushels equivalent to the minimum foreseen in the contract. Some reports indicate a ten per cent increase of their wheat output. In fact, Chinese authorities show reluctance to expand the volume of this agreement and at the present the implementation of contract lags behind schedule.

World trade in wheat was subject to negotiations during the Kennedy Round Conference. The four major exporting countries, Canada, United States, Argentina and Australia came to an agreement with the major importing countries: Britain, the EEC, and Japan on minimum and maximum world market prices. They were set 21 cents per bushel higher than they were previously, bringing about prices for No. 1 Northern at the Lakehead \$1.955 and \$2,385 respectively. Yet, two important targets of the Kennedy Round and IWA negotiations were not implemented. First, the highly protectionist import regulations of the Common Agricultural Policy of the EEC remains unchanged. Second, no agreement could be made about a quota of annual wheat imports into

the Six countries of the Common Market.

At the time the Geneva price agreement was signed there was an upward trend of prices on the world market. The estimate of the wheat crop both in the United States and Canada was rather pessimistic. In the meantime, however, it turned out that the crop in the United States is almost on record level and in Canada the losses are far below that of previous estimates. As a consequence, export wheat prices both in the United States and Canada declined. For example, in November, 1967, the prices were 6 cents per bushel under the minimum price agreed upon in Geneva. Since the new price ranges are not scheduled to go into effect until July 1, 1968, there is a real concern that the current price reduction might affect the implementation of the agreement.

World trade in wheat and products might decline in 1967/68. The current fiscal policy of Britain indicates restriction of imports and encourages domestic production. Western European countries attach highest priority to self-sufficiency in agricultural products. Japan does not intend to change the concept of its international trade which does not discourage imports of wheat and other cereals. India, followed probably by Pakistan reports a good crop, yet, domestic production cannot meet the requirements. In other Asian and African developing countries improvement of the balance of payment situation, combined with gradually increasing living standards, indicates greater acceptance of grains both on commercial basis and as part of aid programs. Imports into Communist countries are hardly predictable and will be determined by actual needs.

Britain, Western Europe and Japan imported in the 1966/67 crop year an estimated 200 million bushels of Canadian wheat and products. While we do not predict an increase in this connection, we do not expect significant changes into another direction. Exports to Communist countries reached their peak in 1965/66 of 334 million bushels and amounted to about 240 million in 1966/67. In the face of previously outlined situation it seems that these exports may be cut, probably by as much as 100 million bushels.

The Geneva agreement on Canada's share in food aid programmes helps to determine the volume of wheat exports to developing countries. They amounted to 55 million bushels in 1965/66 and to 75 million bushels in 1966/67. The latter was unprecedently high because of delayed aid shipments in the spring of 1967. As a con-

sequence, aid shipments in 1967/68 will be in the neighborhood of 30 million bushels. We expect some more activity in commercial shipments to developing countries. Canada has strengthened its ties with Caribbean countries which might become customers for wheat and flour. The reorganization of the Food for Peace program is likely to reduce the give-away system of the United States. When considering commercial purchases some developing countries might prefer Canadian offers to American or French wheat. We estimate Canadian exports to developing countries on a commercial basis to be 35 million bushels.

Thus in summary, a wheat export figure of 400 million bushels is anticipated and projected as follows: (1) to developed countries; 200 million bushels, (2) Communist countries; 140 million and (3) developing countries; 60 million bushels. Domestic disappearance is likely to remain at 155 million bushels. This puts us in the supply position that existed in the 1960-65 period. We can live with that and Canadian wheat farmers need not expect wheat price cuts, indeed they have been assured at least for the 1966-67 crop an initial price of \$1.70 plus the guarantee that the government will pay the difference between the new International Grains Agreement minimum price of approximately \$1.95 $\frac{1}{2}$ and the selling price on all sales made below the minimum thus the price to farmers is essentially \$1.95 $\frac{1}{2}$ for No. 1 Northern. Such a price will mean lower interm and final payments but we predict that unless wheat crop prospects increase substantially in 1968, over 1967, that the initial price next year will not be appreciably different, namely \$1.70, for No. 1 Northern basis in store at Fort William/Port Arthur. The farm price, of course, will be lower than this by transportation and handling charges.

International market for Canadian farm products

With an average annual agricultural export value of \$1.8 billion, Canada is one of the most important exporters of farm products. While wheat dominates the "export mix" there is a gradually growing diversification of goods. Beef and pork along with breeding stock goes to the United States, and South America. Several kinds of meat products to Western Europe, cheddar cheese, tobacco and fruits to Britain

and the emerging states in the Caribbean absorb some of our export commodities. Eastern European countries show interest for special products such as baby-chicks, frozen semen, pure-bred cattle and the like. Since the value of wheat and wheat products accounts for \$1.2 billion, the total value of other goods is relatively small, i.e. \$600 million. Leading commodities are various oil seeds, followed by live animals and processed or non-processed meat varieties. In 1967 the conclusion of the Kennedy Round negotiations attracted wide publicity. In assuming the real value of tariff reductions involved, it seems that Canadian agriculture benefitted very little indeed. Canadian tariff concessions represent \$2.5 billion, almost half of it affects dutiable import. The effect of this on the

price of purchased agricultural inputs has to be seen. Other countries cut tariffs on goods which in 1966 accounted for about \$3 billion of Canadian export. This provided easier access for a great many Canadian products all over the world. In the agricultural sector, however, the main item wheat represents \$1000 million and belongs in the authority of the International Wheat Agreements. Other goods valued at \$3 million enter world markets free and were not affected. Eventually, the volume of agricultural exports negotiated represented \$300 million, i.e. 17 per cent of the total. Some \$95 million of Canadian exports of farm products to the United States are affected by tariff cutting, they include apples, maple products, milling byproducts and

forage seeds. Fifty per cent reductions are to be granted on pork, dairy cattle and carrots. Tariff reductions by the European Economic Community affect raw tobacco, seeds, special meat products and a variety of processed fruit and vegetables. As a result of negotiations the preference for Canadian goods entering the British market was narrowed, so that after full implementation of the agreements the remaining preference will be about 10 per cent.

An important feature of the Kennedy Round agreement is the acceptance of a food aid program defining the share of both exporting and importing nations. Canada's share in the three-year program of 13.5 million metric tons of food grain amounts to 11 per cent.

Part of the Hereford herd belonging to Mr. J. M. Tremblay at Grande-Baie, Chicoutimi. Photograph courtesy Province of Quebec Film Bureau.



Phosphorus

The Ancient Greek word **Phosphorus** literally means, light bringer. To the early Romans, Phosphorus was the morning star, or light-bringer in a more poetic sense. Phosphorus was first isolated by Henning Brand, an alchemist from Hamburg, in 1669. It was a white or yellowish solid which burst into flame upon exposure to air. For early people this strange glowing compound was a magical material not entirely understood.

For the modern chemists, phosphorus is symbolized by P standing for "A" trivalent or pentavalent non-metallic element in the nitrogen group with atomic weight of 30.98." This rather sterile definition gives no hint of the tremendous importance of phosphorus in living plants and animals. In its combined form phosphorus is essential for proteins, phosphorylated sugars, for energy transfer in plants and animals for bones and teeth and other purposes.

SOURCES OF PHOSPHORUS

The soil is the primary source of phosphorus for all living organisms, although it is found widely distributed in water and rocks. In some rocks natural geological processes have concentrated the phosphorus until it is suitable for mining. This rock phosphate is the raw material for the fertilizer industry. In North America all commercial rock phosphate deposits are found in the United States, mainly in Florida and the Western states of Montana, Wyoming, Idaho and Utah. North America has 14,100 million tons of P_2O_5 as a mineral reserve. Thus even if phosphorus fertilizer was to increase by the recommended four times to obtain recommended crop yields, we would still have enough phosphorus to last approximately 140 years. World reserves are proportionately larger and would supply phosphorus for a longer period of time.

THE USE OF PHOSPHORUS

Phosphorus fertilization is increasing. From 1950 to 1964 phosphorus use increased by 212% in Canada. Even so, Pretty (2) and Gilson (1) have estimated that Canadians could use up to four times the amount of fertilizer that they are presently using to obtain optimum crop yields. For example, a recent study (3) showed that average fertilization of corn is 60 lbs. of P_2O_5 whereas the optimum should be 100 lbs. of P_2O_5 per acre. The same holds

for other crops. Barley should increase from around 50 lbs. to 100 lbs. of P_2O_5 , oats from 25 lbs. to 60 lbs., and hay a dramatic increase from 25 lbs. to as high as 150 lbs. P_2O_5 per acre. We have a long way to go before we are using enough phosphorus fertilizer to give us our best yields.

Why are phosphorus needs climbing so rapidly? Probably because we are increasing crop yields to levels undreamed of several years ago. For example a recent survey (3) estimated that maximum yields in Eastern Canada would be 150 bushels of grain corn per acre. However, many of our recent fertilizer trials have given yields well above 150 bushels with one lot yielding well over 200 bushels of grain corn. The soil simply cannot supply the additional phosphorus required for these increasing yields.

In earlier times the soil did reasonably well in supplying much of the phosphorus required for crop growth. In the cultivated layers Canadian soils have approximately 400 to 4000 lbs. of phosphorus. Part of the phosphorus is present as an incredibly complex mixture of metal phosphates: this mixture is either spread out in very thin layers over soil surfaces, or is present as very small impure particles. Up to half of the phosphorus may be found as Organic phosphorus. Inorganic phosphates are very insoluble. Organic phosphates must be decomposed by micro-organisms. Thus the soil released only limited amounts of phosphorus each year for crop production. For tomorrow's agriculture the amount released is not enough, and must be supplemented with fertilizer.

CURRENT RESEARCH

But how much phosphorus fertilizer is required? Where should it be placed? How will it react when it is placed in the soil? These are the questions that we are studying in the Department of Soil Science at Macdonald College. Most of our current work is on corn and forage production, although small grains, oil seed crops and vegetable crops are getting attention as well. The best soil tests for Quebec conditions require constant research and field trial work. It is a constant struggle to improve the soil test for phosphorus from field data.

Once the rate of phosphorus fertilizer has been determined by testing then the method of application becomes important. We have found that the most efficient use by corn of fertilizer phosphorus is to place the phosphorus with the seed. The plant absorbs high proportions of the phosphorus fertilizer. Unfortunately not enough can

be added this way and additional phosphorus must be placed elsewhere. Too much phosphorus with the seed reduces germination. More than 20 lbs. of P₂O₅ with the seed is dangerous. Should the additional phosphorus be applied as ploughdown or in a band at seeding time? At present banding seems to be the most efficient method. However, in some soils ploughdown phosphorus is useful. Soon we hope to be able to predict those soils in which ploughdown will be most advantageous. To complicate matters further, there seems to be a different effect of some corn varieties on response to phosphorus fertilization. Again we are hoping to predict some of these effects in the near future.

With pasture crops most phosphorus fertilization is carried out as a top dressing. Yet we know that phosphorus does not move in the soil to any great extent. Theoretically, therefore, phosphorus should be put down into the soil at the time the forage crop is seeded. In our soil test recommendations we recommended high phosphorus applica-

tions for seeding down of hay and pasture crops. Then smaller top dressings can be applied during the life of the pasture. Thus if we can get phosphorus down into the root zone early in the life of the forage crop it should give us more vigorous growth.

THE FUTURE FOR PHOSPHORUS

The future? Whether we like it or not there is going to be more broadcast applications, more phosphorus ploughdown, and more use of high analysis liquid fertilizers. Higher analysis granular phosphorus fertilizers of up to 60 or 70% P₂O₅ will be used. To meet present requirements Canada has nine fertilizer plants producing phosphorus fertilizers. Four more plants are under construction.

We are going to have to find new ways of reducing phosphorus fixation in the soil, new methods of predicting fertilizer requirements, new procedures for broadcast application, new ways of

putting the magic of phosphorus to work for us in what is left of the 20th Century. We must succeed for six billion people will be waiting to be fed when the 21st Century arrives.

ACKNOWLEDGEMENTS

The author wishes to acknowledge the following sources of information.

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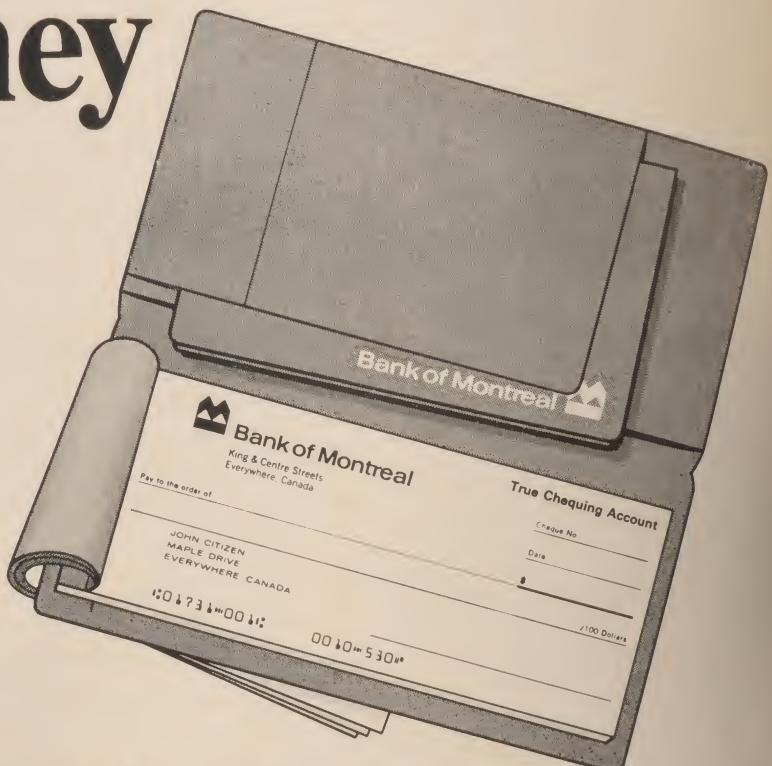
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THE FAMILY FARM

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Beef Cattle in Quebec

Preliminary results of an inquiry into the profit-and-loss aspects of raising beef cattle in Quebec have been published by the Economics Division of the Land Utilization Service, Quebec Department of Agriculture and Colonization, in a report entitled "La rentabilité de l'élevage du boeuf de boucherie au Québec".

The results summarized in the report were supplied by 67 out of the roughly one thousand farmers who raise beef cattle in Quebec. The authors (who include Mr. R. Camirand, Maurice Robitaille, and R. Pichette) point out that the results are preliminary and based on only one year (from March 1st 1965 to February 28th 1966) and would probably have been more encouraging if growing conditions and crops had been better in 1965. Small herds of beef cattle (less than 25 head) and herds owned by gentlemen farmers who also keep dairy cattle were not included in the study.

The main conclusions drawn by the authors are as follows:

Beef cattle raising is slowly becoming more common in Quebec;
Generally speaking herds are small;
Many beef-cattle raisers also raise pigs, poultry, sheep, etc.;

The amount of land now used to feed beef cattle in Quebec averages 3.8 acres per animal unit and is made

up of 1.8 acres of pasture and 2.0 acres of grain and hay. However, this stocking rate could be improved by better pasture management and higher yields per acre of grain and hay;

Capital investment per beef-raising enterprise is high — \$653 per animal unit. Twenty-eight per cent of this total represents investment in land, and forty per cent in buildings and machinery;

After deducting the value of the owner's labour and interest on the invested capital, the average net income per farm on which beef cattle were kept was \$2,152, the beef cattle being responsible for about one quarter of this income (or an average of only \$550);

The farmers with less than 20 beef cows made a profit of \$9.61 per animal unit; those with from 20 to 39 made \$9.96, and those with 40 or more made \$12.47. These figures indicate the importance of increasing the size of the herd. However, feed costs (excluding the value of feed provided by pastures) were higher with the larger herds, as follows:

\$65 per animal unit for herds with less than 20 cows;

\$72 per animal unit for herds with 20 to 39 cows;

\$67 per animal unit for herds with 40 or more cows;

Some of those responsible for the inquiry suggested that farmers should revise their feed formulas.

The cost of purchased feed (averaging \$1,242 per enterprise) plus the cost of cattle for herd replacements (averaging \$615 per enterprise) accounted for slightly over half of the variable costs, which averaged \$3,600. The other half of the variable costs was due to wages paid (averaging \$160); operating costs, upkeep and repair of machinery (\$643); fertilizers and lime, etc. (\$239); seed (\$196); electricity (\$77); veterinary expenses and medicaments (\$40); pesticides (\$22); and miscellaneous expenses (\$366).

Of the fixed costs — insurance, taxes, upkeep and repair of buildings, interest charges, and depreciation of buildings and machinery — the last-named (depreciation) was by far the biggest item at \$1,172 per enterprise or \$22 per animal unit and accounted for 71 per cent of the fixed costs. It is pointed out that any increase in the

A fine Galloway beef bull on the farm of Mrs. T. C. Stuart at Arundel in Terrebonne County



number of cattle reduces the amount of fixed costs per head.

The authors attribute the small size of beef herds in Quebec to lack of the ready capital, knowledge and experience which would be required to start with a big herd. Of the 67 herds studied, 4 per cent were in the Ottawa valley, 10 per cent in the Eastern Townships, and 9 per cent in other regions. Of their owners, only 29 did nothing else but raise beef cattle, whereas 11 also kept poultry, 7 raised hogs, 11 kept both pigs and poultry, 5 had sheep, and 4 had an income from horticultural crops, maple products, etc. In addition, about one third of the owners earned money away from the farm, by working for other farmers or in forestry or mining or for municipal or provincial bodies.

As regards breeds, Herefords were kept on 39 of the farms studied, Shorthorns on 14, Aberdeen Angus on 10, and crossbreds on 4. The small size of the herds and their slow rate of increase — by less than one per cent during the twelve months covered by the study — is attributed by the farmers themselves to the high cost of land and feed and competition from Western Canada.

The farms on which the herds were

kept ranged in area from 78 to 1,120 acres, with an average of 311. Roughly speaking, about one third of the land is in natural or improved pasture (29.1 per cent), one third in hay or grain (33.8 per cent), and one third (37.1 per cent) in woodland, farmyards, roads, etc.

In conclusion, the authors recall that the main purpose of the study (which is being continued) is to examine capital investment, costs, and returns in order to find out if and how beef cattle can be raised profitably in Quebec. They point out that, even when due allowance is made for the effect of poor growing conditions in 1965, a beef herd of less than 40 cows is too small by itself to provide its owner with a fair living. Thus, owners of herds having less than 20 cows derive nearly 85 per cent of their income from other sources and it is considered that anyone wanting to make his living solely from beef cattle should aim at a herd of at least 70 cows.

In general, it was concluded that, in spite of disappointing results obtained from some of the herds studied, other herds made profits which justify the belief that in some parts of Quebec and under certain conditions beef cattle can be profitable.

Mr. Westburn Hamilton came to Clarendon in Pontiac County from Saskatchewan in 1945 bringing with him a liking for Herefords and ten-gallon hats. Here he is with Laird fitting Circle T Della Mischief for the show ring.



Fertilizers, Manure and Soil Moisture

A crop's ability to absorb plant nutrients is dependent upon a certain minimum of moisture in the rich upper layer of soil. This is because most fertilizers are placed in the surface of the soil from one to three inches deep, and this is the zone which is dried out most rapidly.

Many crops are known to respond to irrigation where soil moisture deficits as little as one inch occur. At this stage only the surface layers will have lost moisture and there will usually be ample moisture available to the plants at greater depths.

Irrigation work on grasslands has shown that 3 inches of water applied when 3 inches of deficit occurred produced much lower yields than the same quantity of water applied in one-inch doses each time a one-inch deficit occurred. At the Vegetable Research Station at Wellesbourne in England, one inch of water applied to summer cauliflower, instead of the 3 inches required for complete irrigation, produced 50 per cent of the full yield response. Early potatoes to which two inches was applied instead of the full 5 inches also produced 50 per cent of the full yield response at complete irrigation. From peas in the podding stage, one inch of irrigation produced the same response as the 3 inches required to rectify the soil deficit.

It is difficult to avoid the conclusion that water in the surface layer of the soil produces greater benefits than more deeply seated water and that the longer the surface layer retains some moisture the better. Yet, what is known of the mechanism of water uptake by plants would suggest that water should be equally available for transpiration whether deep or shallow, provided that roots are present to absorb it. This apparent anomaly is explained if it is assumed that the response to irrigation takes two distinct forms: at small deficits, irrigation water would make plant nutrients more available; at large deficits, it would also supply water to correct deficiencies of transpiration. In the latter case, wilting would occur if no water were supplied; in the former, there would be no wilting.

In a ten-year series of experiments at Leeds University, the effect on potatoes of three rates of nitrogen in the presence and absence of 10 tons of farmyard manure per acre was tested. It was found that the response to nitrogen in the form of fertilizer was greater in wet years than in dry years. On the other hand, the response to the nitrogen in farm yard manure was



Edwin Pirie of Bristol, Pontiac County, spreading manure on his grassland.

greater in the dry years than in the wet, and it was shown that the manure was having an effect which could not be reproduced by additional inorganic fertilizers.

A further series of tests showed that the 10 tons per acre of manure increased the quantity of available soil water by only one tenth of an inch. This was not enough to have a significant effect on the transpiration stream of the plants, so that the small amount of additional moisture obtained by the crop from the manure could not by itself be considered responsible for the greater response to manure in dry years.

The evidence suggested that the lumps of manure contained enough moisture to render the contained plant nutrients available to plant roots at a time when the surrounding soil was so dry as to restrict the availability of the inorganic fertilizer.

If the dry-season effect of manure was produced in the manner suggested, it would be expected that equivalent inorganic nutrients in contact with soil moisture would have similar effects. Irrigation would be one way of achieving this; the placement of the nutrients at some depth in the soil might be another.

The latter hypothesis was tested in another three-year experiment in which three rates of inorganic nitrogen

(nil, 80, and 160 units per acre) were combined with three "organic" treatments (no organics, 10 tons per acre of manure in the ridges, and the equivalent plant nutrients present in 10 tons of manure applied as inorganic salts in solution and injected 7 inches below the parent tuber). It was found that the deeply placed inorganic salts produced a similar response to manure at the high rates of normally applied fertilizer nitrogen. At nil nitrogen, the deeply placed inorganics had a bigger effect than manure, indicating that the available nitrogen in the latter had been overestimated. The general trend of the results was to confirm the aforementioned hypothesis.

In a third series of experiments, direct comparisons were made between deep and shallow placed fertilizers on potatoes (surface application of N, P, and K; the same amounts of N, P, and K injected in two bands 2 inches to the side and slightly below the parent tuber; and liquid fertilizer injected 2 inches to the side and 7 inches below the parent tuber). In each year the deep-placed liquids out-yielded the shallow-placed liquids. The difference was least in 1965, a year in which there were only very small deficits of moisture for the potato crop. Similar, though less decisive results have been obtained in parallel experiments with sugar beets.

The evidence suggests that at least some of the benefits of irrigation might be achieved by deep placement of inorganic fertilizers. This would only be so, however, at relatively low water deficits, say of the order of one to one and a half inches. It is not suggested that deep placement will produce the effects of irrigation when water deficits exceed these values. The evidence also shows that deep placement of inorganic fertilizers produces somewhat similar dry-season effects to that produced by 10 tons per acre of manure. (From "Put Fertilizers where it's Wet" by Robert Holliday in the *Farmer and Stockbreeder*, October 24th 1967)

Raymond Cloutier, an agricultural student of Laval University, and Jean Larose of the Institute of Agricultural Technology at La Pocatière taking soil samples on the farm of Arthur Bédard at Ste-Hélène, Abitibi West.



Crop Insurance for Quebec Farmers

Stooking oats on the farm of Emile Bégin at Coaticook Stanstead. Grain crops are included in the new Quebec Crop Insurance plan.

A Modest Proposal

by
Dr Rolland Poirier

On its hundredth birthday, Canada could perhaps afford to treat itself to a bit of long-term insurance and publicity. Why doesn't Canada decide to specialize and choose a special function in the world that would distinguish it from other countries? Canadians have long sought an identity which could serve as a rallying point for their hearts and minds.

When we talk about diamonds we think of Antwerp; in the case of banking, the Red Cross and neutrality, we think of Switzerland; and when it's a question of money, efficiency and the biggest in the world, we think of our neighbours to the south; for perfume, wine, cheese, culture and elegant language we look to France; and Russia is famous for communism, sputniks, discipline and physical sciences.

Why don't our political leaders start Canada on the mad adventure of trying to provide food and effective information about food for every country in the world that needs them, without distinction as to colour, political ideology or religious creed?

To succeed in such an adventure, it would of course be necessary at the outset to make a choice between guns and bread and butter. In the case of a serious conflict, would our famous weapons, however modern, protect us? I am a little doubtful. But I think the reputation of being a nation that feeds a starving world would be a better safeguard for us than our guns. Some people might object that this is idle talk; but I would remind them about the lengthy history of Swiss neutrality.

By thus creating a new role for Canadians on the world's chess-board, we might also put an end to our bilingual and bicultural quarrels, or at least diminish them. I have always believed that there is nothing like a big job to the done to reconcile people — as witness Expo '67.

There is an American song which says that if you want to make your dream come true you must start by having a dream. Well, here's a fine dream that I suggest to all my Canadian brethren. (From "Agriculture", Montreal, Vol xxiv, No 3)

A significant change could come about when crop insurance comes into effect in Quebec in 1968 — if farmers can be convinced of the benefits of insurance and if the government refrains from giving anything but emergency relief to farmers who suffer crop losses after declining to buy insurance. For, quite apart from its insurance aspects, the plan Quebec is developing could be a means towards encouraging better farming techniques. As one member of the Farm Insurance Board put it: "We will not be insuring negligence. This is business, not welfare."

The bill certainly supports this contention when it states: "An insured shall not be entitled to any indemnity if the seeding or harvest is not effected at the proper time having regard to climatic conditions according to established and recognized local usage as determined by regulation, if need be," and when it says, "The board may reduce the amount of any indemnity whenever it considers that the decrease in yield is attributable to the negligence or mismanagement of the insured or his representatives."

Across the board

The government plans to institute crop insurance across the board — at least for mixed farming, which constitutes the largest segment of the industry in Quebec — instead of in selected localities as other provinces have done. Manitoba, for instance, began its crop insurance program six or seven years ago in areas where it felt it would sell, and sales were given a significant boost almost from the outset by the 1961 crop failure. Some specialized farming will also be covered in Quebec, and more will be added as information is collected that would make insurance feasible.

The terms of the insurance should appeal to all but the most reactionary, too. In fact, they will be more liberal, than terms offered anywhere else in the country. For instance, farmers will be required to pay only 50 per cent of the total premium, as compared with 70 per cent that Ontario farmers now are paying in the small area of that province where insurance is in effect.

Furthermore, while a basic indemnity will be paid for loss of yield on all insured crops — up to 80 per cent in the case of fodder and cereal plants — two other levels of indemnity will be applicable as well; for damage to

a hay crop from drought or winter-kill and when hay has to be bought because of a crop loss.

How it works

As a purely hypothetical example, a typical farm of about 120 acres, and running between 20 and 30 cows, including calves being raised for replacements in the milking herd, might have 50 acres in hay, with a normal yield of two tons an acre for a total of 100 tons. A farmer's insurance would cover him to the extent of 80 per cent, or 80 tons.

If the farmer were to suffer a 50 per cent loss caused by snow, hail, hurricane, excessive rain, frost, insect or plant disease against which there is no feasible means of protection, he would be paid a basic indemnity of the average cost of production on the 30 tons of hay required to make up the difference between the 50 tons he produced and the 80 tons guaranteed by his insurance. If the average cost of production were, for instance, \$16 a ton, he would receive a basic indemnity of \$480. On top of this, if the loss were due to drought or winterkill, he would receive this basic indemnity plus a second indemnity, automatically, of one third of this amount, or an added \$160. Then, if he had to buy hay on the open market to feed his animals, he would be paid the difference between the average cost of production, \$16 in this hypothetical case, and the market price. If this were \$26, he would receive as much as \$300 extra if he had to buy a full 30 tons, bringing his total indemnity on his hay alone to \$940. The reason behind this third indemnity specifically is to avoid the possibility of the farmer having to sell some cattle for lack of feed. On top of this again, of course, he would receive the basic indemnity available for losses to his feed-grain crops. (From an article by Max McMahon)



New Member of Quebec Crop Insurance Board Appointed

The Minister of Agriculture and Colonization, Mr. Clément Vincent, has announced the appointment of Mr. André Bellerose as the fifth controller of the Quebec Crop Insurance Board.

Mr. Bellerose, who will be the farmers' representative on the Board, is 37, lives at Saint-Camille in Wolfe County where he operates a farm, and is vice-president of the Sherbrooke branch of the Union Catholique des Cultivateurs. He took the intermediate course in agriculture at the Noé-Ponton school in Sherbrooke and, in 1966-67, also took a Department of Agriculture and Colonization continuation course in agriculture.

"His varied activities among farmers, especially as a member of the committee which assessed damage to crops in 1965, have given him valuable experience that will be very useful in his new position", said Mr. Vincent.

The four other members of the Quebec Crop Insurance Board are Mr. Roméo Martin, chairman, Mr. Jean Blanchet, vice-chairman, Mr. J. Maurice Massicotte, and Mr. Roland Bergeron.

Quebec Crop Insurance Board

Notice

Concerning the rates of assessments and unit prices for the year 1968.

Pursuant to the provisions of section 37 of the Crop Insurance Act (15-16 Elizabeth II, chapter 44), the Quebec Crop Insurance Board, for the crops of mixed farming land (section 1 b):

1. establishes (section 33) the rates of assessments for the year 1968 as follows:

(a) forage plants: \$3.50 per \$100 of insurance.

(b) cereal plants: \$6.50 per \$100 of insurance.

and

2. fixes (section 36) the unit prices for the year 1968 as follows:

(a) forage plants: \$16 per ton (2000 lbs.) of tame hay or of an equal amount of forage.

(b) cereal plants: \$2.25 per 100 pounds.

Quebec, December 13, 1967.

ME JEAN-MARC DUCHARME,

22439

Secretary.

Information Versus Rural Poverty

Rural poverty is no simple matter. It is as complex as the psychological and intellectual makeup of a multitude of people of varying cultural traits, in various economic hinterlands, living by the product of a multitude of soil types and by the product of the seas. Rural poverty is linked, both in its historic causes and its present effects, with social institutions — three or four levels of government, the religious groupings, educational systems, the market systems, and a vast number of private vested-interest groups of one sort or another. Rural poverty is not a matter to be cured by good intentions, slogans, panaceas and a few hundred million dollars. *Rural poverty is the result of faulty decision-making by individuals and governments during half a century. It, and a host of related ills, both rural and urban, cannot be cured by any means other than improvement of the decision-making process.*

There is no simple formula whereby the decision-making process can be improved and the problem of rural poverty can be met — along with the related problems of education, welfare, development of economically and culturally lagging regions, effective land

use, improved labour mobility, etc. etc. The key to the problem is information — its collection, its dissemination, and its acceptance. Only on the basis of adequate information flow can adequate adjustments occur.

To be useful, information has to percolate to the right places, at the right times, and it has to be of such a kind that it causes people to act, or change their actions.

Effective communication among governments is in itself a considerable problem. Communication between governments and citizens is even more complex. The highly literate, highly productive individual must know what is going on, because he is paying for it. The less literate, less productive individual must know what is happening — or what is planned — because he is expected (in some cases) to alter his whole way of life.

On the one hand, the sophisticated, person is likely to be urban, thus not directly concerned with rural problems. During all his waking hours he is subjected to a constant stream of information on every conceivable subject. The less literate person in a condition of poverty in a rural area may, on the other hand, be almost totally unreceptive to the kinds of information which might be expected to cause him to change his actions. Between these extremes are a host of 'publics', each with its own characteristic ways of learning and changing.

Information has to have a source in detailed policies if it is to be of any use whatsoever. And the policies must 'hang together' so coherently that policies relative to rural poverty are merely one component of a national policy. Otherwise, no-one, from federal cabinet minister to municipal clerk, knows exactly what he can do and what is expected of him.

National policy, and the provincial policies with which it must be coherent, is not simple to work out. The key, in Canada at least, is probably in setting up a viable framework for regional development, to provide full rein to the real potentials of each region.

This involves flexible tax arrangements between the federal and provincial governments; it involves decentralization of federal administration, with considerable changes in the federal departmental framework; it involves introduction of new technologies and new approaches to research and data collection; it involves education, manpower mobility, and industrial development programs much more dynamic and coherent than are at present possible. In sum, regional development demands sensitive and intelligent consideration of the natural resources, the market potentials, and

the attitudes, skills and potentials of the people.

Once again; these requirements are supremely difficult to achieve, and the onus rests with all citizens to learn, to understand, and to act. Otherwise, without inter-action among many thousands of informed citizens, little is likely to happen to resolve the dilemma of rural poverty, and of all the related problems — pollution, Indian affairs, resource conservation, urban sprawl, and so on. Rural poverty is merely one aspect of the over-riding problem of communication and policy formulation. (From "Poverty in Rural Canada" by D.F. Symington, *Canadian Geographic Journal*, December 1967)

New Organization of the Department of Agriculture

The Minister of Agriculture and Colonization, Mr. Clément Vincent, has announced changes marking the second stage in the reorganization of his ministry. The changes involve all services under his immediate jurisdiction or that of his deputy ministers or making up the main branches of the Department.

It will be recalled that Mr. Vincent recently announced the setting up of two main branches: Production and Development under Mr. Lucien Bissonnette, assistant deputy minister; and Marketing under Mr. Gilles Ledoux.

In the new organization, four services are under the immediate control of the deputy minister, Mr. Roméo Landre, and of the associate deputy minister, Mr. Benoit Lavigne, namely:

- 1) Administration;
- 2) Information;
- 3) Agricultural hydraulics;
- 4) Economics and Planning.

Another four services come under the Production and Development

Branch: —

- 1) Research and Education;
- 2) Regional offices and laboratories;
- 3) Farm development;
- 4) Artificial insemination and livestock improvement.

And the director of the Marketing Branch will have three services under his control: —

- 1) Marketing;
- 2) Food Hygiene and Inspection of agricultural products;
- 3) Dairy products.

Mr. Robert Rouleau, who has been appointed director of administration, studied accountancy in Bathurst, New

Brunswick, before entering the accounting division of the Department in 1933 and rose through the ranks of the division of the Department in 1933 and rose through the ranks of the division to become its head prior to his latest promotion. He is 51.

Mr. Patrick Boudreau, who will direct the Information Service, is 52. He obtained his secondary education in France at the "petit séminaire" in Tours, and subsequently studied at the College of Agriculture and Fisheries in Sainte-Anne-de-la-Pocatière. A specialist in adult education, he was one of the founders of the United Fishermen's Federation of Quebec. As export manager of the Federation, he visited the United States, Cuba, Jamaica, Haiti, the Dominican Republic, Porto Rico, Trinidad, British Guiana, Brazil, and various parts of Canada. He later became director of distribution and information for Quebec in the National Film Board.

Mr. Léo-Paul Provencher has been appointed director of the Agricultural Hydraulics division. A 49-year-old civil engineer, he has been with the Department since 1944 and held several posts in it before becoming head of the drainage division, the position which he occupied until his new appointment.

Dr Bertrand Forest, who is 49, becomes director of Research and Education. He holds a bachelor's degree in agriculture from Laval University, a master's degree from McGill, and a doctorate from Cornell. His previous appointments include that of head of the Research and Scientific Information division.

Mr. Armand Roy, who will direct the Farm Development service, is an agronomist aged 59 who was formerly head of the mechanized farm improvements division. He has been in the Department since 1937 and has held a number of positions in Abitibi, in the Gaspé and at Quebec.

Mr. Nazaire St-Pierre will direct the Artificial insemination and livestock improvement service. Mr. St-Pierre, who is 55 and an agronomist, had been manager of Quebec's A.I. Centre and director of the A.I. division since 1948. He is 55.

Dr Albert Lavallée will be head of the Food Hygiene and Agricultural Products Inspection Service. Dr Lavallée, who is 51, is a veterinarian. He began his service with the government in 1947 as a veterinary inspector with the Health of Animals Service. Before his new appointment he was head of the Health of Animals division.

Some other heads of services are still to be appointed. These positions will be filled in the light of the results of competitions now being held.

Macdonald Reports

The Swing to Corn Silage for Dairy Cows

Prof. Peter Hamilton
Animal Science
Macdonald College

There are a lot of changes taking place in Quebec's big dairy industry these days and some of the most important are right at the production level in the way dairy cows are being fed and managed. Hay is the traditional winter roughage for Quebec dairy herds and until recent years all other feeds were secondary. But *corn silage* is making rapid headway and is already the major roughage on many of the commercial dairy farms in Quebec.

Not that corn silage is really new to Quebec. Back in the twenties and thirties, wooden silos went up on almost every farm in some communities. Many of these old silos are still standing and some are still in use. The corn silage they produced was of low quality by today's standards. In the short growing season characteristic of Quebec, the old corn varieties were harvested long before maturity. The moisture content was high, and the energy content low. Corn silage was fed as a conditioner on most farms, only 20 to 30 lbs. per cow per day — as a supplement to 20 or 25 lbs. of hay.

The corn silage of today is quite a different product. In spite of a short season, it is much lower in moisture and higher in energy than it used to be. It's stored in far greater quantities and fed in larger amounts. For a milking cow, 50 to 60 lbs. of corn silage a day with only 12 to 15 lbs. of hay is typical.

But Quebec farmers are still at a disadvantage compared to the traditional corn growing areas of Canada. Samples of corn silage taken and tested from 82 silos by Macdonald College personnel showed that only 5% were at the optimum dry-matter level — 35% or higher. 62% of the silages were under 29% dry matter — a level considered too low to give best results as a feed. It would appear that varieties that are even more early maturing are needed.

In spite of these disadvantages, dairy farmers are going rapidly and heavily to corn silage. The reasons are varied. Even at the present moisture levels corn silage is performing well for dairy cattle. It's a palatable, high-energy roughage, compared at least with hay of the quality they usually are able to make. Most dairy farmers who are involved with corn say it is a more dependable crop than hay — even if it doesn't fully mature. As herds get larger the problem of making

enough hay and still maintaining quality becomes greater. Corn silage relieves the pressure. The haymaking period is shortened and quality may be easier to achieve.

Ease of mechanizing the feeding, high production per acre, lower cost of supplementing corn silage rations with protein — all these are among the reasons for more corn silage. But when you talk to Quebec dairy farmers you wonder if any reason is as important as their optimism for the future of corn. They are *convinced* there will be still *earlier* varieties — and varieties that will better suit their needs.

I asked Dr. Drawn, Corn Researcher here at Macdonald College, if the optimism is justified. His reply was emphatically — yes! There is every reason to hope for varieties that will better suit the short season of Quebec's dairy districts.

Dr. Brawn is deeply involved in work on early maturity because of its importance in Quebec. For instance, he is attempting through his breeding work to capture in high-yielding varieties, the cold-resistant characteristic of a stunted corn variety, native to the high ranges of the Andes Mountains. In other work he is concentrating on speeding up the ripening interval — from flowering to maturity and on the growing period — from planting until flowering.

These are only a few of Dr. Brawn's projects and his work in corn is an example of what is going on at institutions in several parts of the continent. With this effort going into research, dairy farmers could well be justified in putting their faith in corn as the important future crop for dairy production in Quebec.

Youth Conference

Theresa Whelton
4th year B.Sc. Student.

What kind of an organization can best serve the rural youth of Quebec?

This was the question that thirteen rural young people tried to answer the week-end of December 1, 2, and 3.

During the month of July a Quebec-Ontario-Alberta Centennial Youth Exchange took place. The Quebec Farmers Association sent twelve rural Quebec youth to Alberta and hosted twenty-four from Alberta, twelve from Ontario and twelve from Quebec.

The Quebec youth expressed a wish for a follow-up conference to be held later in the year. This was the result



Mr. Gaston Allard,
Quebec Department of
Agriculture and
Colonization

— thirteen young people with Galen Driver, Macdonald College Extension Department; Pauline Andrews, supervisor on the Alberta trip and Teresa Whelton met in the McGill Residential Centre on Mt. St. Hilaire for a Weekend. Although all the people who had participated in the exchange were invited, only thirteen found it possible to attend. A representative of QFA Directors, Harris Shufelt, was also invited, but he, too, regrettably found it impossible to attend.

Friday, December 1, found three heavily laden cars bound for Mt. St. Hilaire.

Informality was the key note of the week-end. Through the combined efforts of Mrs. Galen Driver and Mrs. Pauline Andrews a menu had been prepared and food had been purchased. Once there, Mrs. Andrews capably took charge of the culinary aspects of the week-end, with able assistance provided by all.

Group discussion dominated the work scene. Three periods of discussion were held with Colleen Coates, Wayne Crossfield and Max Dallenbach acting as discussion leaders in their respective periods.

The theme of the first discussion worked towards stating what young

people want from rural youth organizations. A summary lists: knowledge, challenging projects, leadership, varied and interesting programs and unification as the most important criteria. Leadership, especially, was stressed in this period. An attempt was made to define the group's concept of leadership, and the role of the adult leader, the agronomist and the club member.

Programs and projects were discussed in the second period. Alternatives to the calf project were enumerated. Horticulture and Agronomy projects; Farm Management; How People live in the City and Interior Decorating were considered to be the most important practical of those discussed.

During both these discussion periods a representative of the Quebec Department of Agriculture, Gaston Allard, was present. He provided sound information, offered concrete suggestions; and before leaving, offered his co-operation in implementing any of the projects discussed.

A record player, an excess of Country and Western music records, a tangy punch and boisterous spirits set the scene for Saturday evening.

Sunday morning — oh, so early — began the third discussion period. The group realized that they had gone as far as discussion would permit. The next step was *action!* But how? Could this group assume authority? To a certain extent they could — and did. The first step was publicity and salesmanship. They realized the importance of informing and involving the various rural youth organizations in the ideas that had been expressed there.

Another conference, similar to this was planned — with the original exchange members invited plus two members of each club in their districts and QFA representatives. A committee was set up to organize this — with a tentative date in February planned.

Several times during the conference members expressed disappointment that Soil Project plans had never been completed. Arrangements were made to communicate with the Director of the Macdonald College Extension Department and discuss the possibilities of having this project resumed.

The week-end was a success. It ended on a happy and optimistic note. These people were clearly not satisfied with their rural youth organizations. Can they change their clubs to the extent that they will be getting what they want? They're working on it . . . and optimism resigns.

The Counting of the Shrews

The smallest mammal in the world, yet one of the most effective in biological control has wildlife biologists really puzzled these days. The tiny shrew — a relative of the mole family, is usually a very effective means of biological control of the larch sawfly. The larch sawflies spin their cocoons in the top layer of soil and that is where the shrew has his home. So rather than shop around for food, the shrew eats the larch sawfly cocoons — Needless to say this doesn't do much for the larch sawfly's plans for multiplying.

Research has found that in Manitoba and in New Brunswick the shrew can eat up to 95% of the sawfly cocoons. In Newfoundland, where the shrew was introduced in 1958, control is at best only 35% — And the biologists are wondering why.

Dr. Bider of Macdonald College is investigating the question and while he does not have specific answers he has some real interesting results.

He found that the shrew population was probably only one or two per acre in the spring but by September these had increased to around 60 per acre. Then, suddenly there was a tremendous drop in population — with very little activity by the middle of September — As a result only about 10% of the buried larch sawfly cocoons were eaten by the shrews.

The big question then is why does this large population of shrews so suddenly collapse. There is lots of food and they certainly are able to multiply quickly with litters of an average of seven or eight every eighteen days. As far as its appetite is concerned, the shrew normally eats more than its own body weight every twenty-four hours. Some are so hungry that they eat three times their body weight.

Why then, do the shrews act so differently in Newfoundland? In September, 1958, ten males and twelve females were released four miles east of St. Georges, Newfoundland. By 1959, 130 shrews had been caught — apparently they are advancing across Newfoundland at a rate of 13 miles per year.

But despite this, the shrew still is not doing what he was supposed to do — to serve as a means of biological control of the larch sawfly. The mystery remains — but wildlife biologists at Macdonald College are determined to find the answer — by studying the shrew's activity patterns — in Newfoundland.

Women's Institutes

and now . . .

LIONS

Old Macdonald had a farm with cattle, sheep, pigs and . . . lions! Lions? Yes, David and Bess, the Royal Ethiopian lions who charmed millions at Expo '67, are now in residence in the swine building at Macdonald. The Zoological Society of Montreal, which has charge of the big cats for the winter, is most grateful to the Macdonald authorities for giving them a home.

David and Bess were about five months old when they arrived from Ethiopia at the end of April so they are now just entering their second year. The fluffy cub coats were soon moulted leaving the lions with their sleek tawny coat. The characteristic mane of the male lion began to appear during the summer but it will be another four years or so before David reaches full maturity.

The lions found Montreal's humidity and summer heat oppressive but they've revelled in the cooler weather after Expo closed and the first snowfall found them cavorting outside with a layer of snow on the head and back. They miss the fresh air and hopefully arrangements might be made at Macdonald for them to go outside.

David and Bess are obviously intrigued with the pig noises around them and often look through the windows to watch what is going on. So far, they are virtually silent although signs of squabbling with low growls at feeding time suggests that they are now finding their voices. Food consists mainly of beef supplemented with vitamins to correct bone weakness may have been due to the cubs being taken from their mother at too early a date.

When Expo reopens next May, the City of Montreal hopes to have David and Bess back again and that will be quite a change to looking at farrowing sows.

David and Bess, the Royal Ethiopian Lions, at Macdonald College, December 1967. Photo by Ian Tippet.



*Norma Holmes
Quebec Women's Institute*

ABITIBI: Matagami: A moment of silence for deceased members. Christmas party held with games, exchange of gifts and refreshments. Three new members welcomed. A Christmas basket filled for a family.

ARGENTEUIL: Arundel: Slides of France shown by Mrs. Sosnkowski. Christmas party held with several senior citizens as guests. Christmas carols were enjoyed. **Brownsburg:** Successful tea and bake sale held. Donation made to Brownsburg High School Commemoration Book 1926-68. Christmas party included instrumental numbers, solos, carols etc. Six ladies representing Latvia, Estonia, Holland, Switzerland, Germany, Ireland and Canada told of the Christmas customs of their homeland; each had decorated a tree in their own custom and some wore the dress native to her country. The senior citizens were treated to a dinner and entertainment. **Dalesville:** Roll call: Gift to a needy organization and Pennies for Friendship; demonstrate a reducing exercise or pay ten cents. Christmas Party followed the business meeting. Their guests were members of Jerusalem-Bethany Branch. **Frontier:** Christmas meeting with roll call bringing donations to a worthy cause; appropriate readings given, carols sung and exchange of gifts. A contest of scrambled words on foods used at Christmas was played. **Jerusalem-Bethany:** In Nov. Mrs. Lloyd Ivvall, Division Commissioner, spoke on the Girl Guide and Brownie movement. Mrs. Dewar gave a demonstration on icing cakes. Roll call was answered by naming a favorite Christmas food. A Life Membership pin was presented to Mrs. Norman MacGeorge, and a silver tray to Mrs. Bert McGibbon for having the highest number of points for exhibits at the Lachute Spring Fair. Program of readings, carols and exchange of gifts followed. **Lachute:** Roll call: recipes of Christmas desserts and candies. Gifts for Christmas were brought in. Mrs. Leggett arranged a program which included 'Whistle while you Work' and the 'Open Door for Christmas' read by Mrs. Gordon Dobbie. 'Is There a Santa Claus' by Mrs. Leggett. The program closed with exchange of Seasons Greetings. **Pioneer:**

An appeal was made for good clothing to be taken to the Lachute High School for distribution to needy families. Each member present gave a donation as well as a donation from the Branch to help make a Christmas Party for some 50 retarded children in St. Andrews



East who must remain in residence for the Holiday Season. Flowers and cards to be sent to shut-ins, the sick and to friends. Mrs. Arnold Parker read 'In search of Christmas' written by James E. Fogartie. Three competitive games were played with prizes given by Mrs. George Rodger. **Upper Lachute — East End:** Meeting held in the Orange Hall in Lachute. Each member introduced her guest — total attendance was 59. The usual donation was voted to the Lampada Committee. An article read concerning a Centennial Project of a Library being started in the North. A card signed for a sick member. Entertainment consisted of several games. A group of members known as the 'Corn Borer's' sang many old-time favorites.

A lapse of time here while the prevailing epidemic takes over.

BROME: Abercorn: A discussion on the legalization of Abortions and Contraceptives from paper received from F.W.I.C. Exchange of Christmas gifts, Christmas Cheer sent to shut-in, Christmas cards to absent friends and members. **Knowlton:** Roll Call — Why the W.I. needs Publicity. Donation of \$5 given to UNICEF. **South Bolton:** Roll call — Christmas story or tradition. Letter from Mrs. McGibbon concerning Plaque for the Hall was read. Committee named to take care of Christmas Cheer Boxes and exchange of gifts among members.

COMPTON: East Angus: Roll Call — an event or date from a history lesson. Several members helped at Blood Clinic. Boxes of UNICEF Cards sold. Children collected \$87.97 for UNICEF and they were given a party by the W.I. Branch. Mrs. Bishop read a poem taken from Megantic Edition of Weekly Gazette 1910 entitled "When the Hens Began to Lay". Mrs. Bernard read "Song of a Lazy Farmer". **Canterbury:** Discussed the paper from F.W.I.C. Completion of plans for: pens to school children, books and toys to pre-school-age children; boxes for shut-ins and exchange of gifts among members. Gifts brought for Military Boxes. **Cookshire:** Agr. Convenor spoke on students from Korea studying in Canada. Home Ec. Convenor gave a talk on packaging fish. Publicity Convenor spoke on UNICEF with excerpts from U Thant's speech given at a banquet. Contests of Hidden names and Jumbled surnames. Penny Auction for Sunshine Work. **East Clifton:** Wreath made and placed at Cenotaph and a reading given to commemorate Nov. 11th. A reading given on an early settler, Mr. John Cleary, who settled in Bishop's Crossing; now called Bishopton; this reading was taken from an American paper. **Brookbury:** Roll call: Two articles for each of eight baskets of Christmas

Cheer; four Special baskets packed. A special box and \$10. donated to a needy family. Christmas Seals sold and money sent to Cookshire. Money voted for school lunch of needed. This Branch will meet again in March.

CHATEAUGUAY-HUNTINGDON:

Aubrey-Riverfield: Held an American Geography Quiz. Two quilts made for December Social Service Day; one of these was donated to Welcome Hall, Montreal. Toys donated to Lachine Children's Home. Life Membership pin presented to Mrs. Mary Templeton. Christmas story read, exchange of gifts, carols sung followed by a potluck lunch. **Dewittville:** Talk by Mrs. Evelyn Lamb: Interior Decoration, using pictures color charts, etc. Held successful tea booth at County Fair, a Nearly-new Sale, three group trips to EXPO instead of meetings. Eleanor Seggie and Jean Anderson, co-owners of antique and gift shop in Ormstown, spoke on and showed examples of Canadiana. Ellen Bulow is winner of scholarship given by this branch. A trip to Dow Planetarium to see Christmas Show and a card party held to entertain husbands and members of Dewittville Youth Association. **Dundee:** Exchange of gifts. Demonstration of ball of flax thread and a doily made from flat thread between 100 and 150 yrs. old. **Huntingdon:** Minute of silence for departed member. Donated \$25 to School for Retarded Children. Arranged for gifts to shut-ins. Prizes given for Christmas decoration Contest. Christmas gift exchange and a card party held to which husbands were invited. **Howick:** Talk by Mrs. Sanction, a social worker. Entertained Aubrey-Riverfield Branch. Demonstrated Christmas Table Decorations.

JACQUES CARTIER: Ste. Anne: Meeting held at home of Mrs. Gill. The meeting included collection for CARE; exchange of gifts, a reading, games sing-song and lots of good food.

GASPE: Dartmouth River: Roll Call — Expo souvenir. This Branch was hostess for Semi-Annual held in October; seven branches were represented. Donated first-aid kits to two schools and donated a baby's high-chair to a member. **Gaspe** names drawn for exchange of Christmas gifts with each member bringing a guest. Successful food sale held. Articles read on Dr. Llames pills for Thrombosis; Shop talk about Permanent press; and 20 Best colleges in Canada. Semi-annual reports given. Donation of \$5 sent to Unitarian Relief. **Sandy Beach:** Roll Call: Wear a Poppy. Many Centennial Costumes worn by members: the meeting was at the home of a former member now residing in Campbellton. **Wakeham:** Roll call: what you did for Centennial and to wear a poppy or pay 10 cents or a fine. Held a Harvest Sup-

per to raise funds. Flowers given to lady celebrating her 100th birthday; 100 lbs of clothing given for Unitarian Relief; helped with UNICEF shell-out; attended and entered Annual Fair. **York:** Roll call: Name a Fire Hazard in the Home. Held successful Rummage Sale with clothing not sold being sent to Unitarian Relief. Publicity Convenor asked members to tell what they found most interesting at EXPO. Agriculture Convenor told of the many complaints of rot in potatoes in local area. Education Convenor read an article regarding Regional School in Gaspé district and urged all members to attend a meeting. Home Ec. gave hints on keeping garbage tins from upsetting, by placing them in old tire. Voted \$10 to Hotel Dieu toward a TV for Pediatric Ward. A new member was welcomed. Donation of gifts for Indian Children. Contests on Royal Family.

MEGANTIC: Inverness: Christmas Cheer for shut-in's. Donation to the Northern Canadian W.I. The new Centennial kitchen was inspected. Christmas gifts exchanged. **Kinnear's Mills:** Planned a Christmas Party for Children of the Community and each member brought a gift to be sent to a retarded child. Gifts were exchanged among the members.

MISSISQUOI: Cowansville: Roll Call: reading or reciting a Christmas poem or verse. Donation given to School for Retarded Children; exchanged gifts with their Link Institute in England; raffled their Centennial Rug, the winner being a lady in Vancouver, B.C.

PAPINEAU: Lochaber: Roll call: Name a Federal Cabinet Minister. Novelty Sale held. Gave a crocheted toy poodle to member who had meeting at her home. Gave a pin to member who has made several quilts for Unitarian Service. Children collected \$258.44 for UNICEF.

PONTIAC: Bristol: Film on Jewish People. Purchased UNICEF cards, sold poppies, placed wreath on Cenotaph for Remembrance Day. Rev. Snowden addressed the meeting. **Clarendon:** Rev. Snowden spoke to this group. Reports given on Centennial banquet. \$100 donated to Pontiac Community Hospital. **Fort Coulonge:** Mrs. Robert Rabb was hostess and served a delicious dinner to members and guests preceding the Christmas meeting. Roll call: exchange of gifts. A Christmas story read followed by singing carols. Donations to TB Seals and to Senior Citizens Home in Bristol. Demonstration of Christmas tree decorations made from drinking straws. **Quyon:** \$10 sent to Central Auxiliary of Pontiac Community Hospital. Proposed essay to be written on 'Progress in Agriculture in the Last 100 years'. Had a successful card party; treats to be given the shut-

ins. To study Constitution of Canada. **Wyman:** Contest from Maclean's Magazine on Education is a girl's best friend'. Plan made for Christmas treats for Senior citizens and shut-ins. Study Dominion of Canada and Parliamentary Procedure. Demonstration of liquid embroidery.

ROUYN-NORANDA: Farmborough: Filled Christmas Stockings and welcomed two new members. **Noranda:** Worked on Quilt.

RICHMOND: Cleveland: each member contributed to a program of readings and contests. Cookie contest held; following contest these were used in the Christmas Cheer Boxes. Had a Christmas Tree and gifts for pre-school children. Plans made for making an applique quilt, members exchanged gifts. **Gore** sent parcels to five children at Dixville Home. Each member brought a gift for a patient in Douglas Hospital in Montreal. Children of members up to nine years of age were given gifts and candy. Donated \$20 to Welfare Fund of St. Francis High School. Article entitled

'Meet the W.I.' taken from Magazine 'In Britain' was read. Members plan to visit Dennison Store in Drummondville; members exchanged gifts. **Melbourne Ridge:** held contest on Christmas Cookies. In this Centennial Year three Life memberships were given. Mrs. A Morrison, Mrs. F. Roster and Mrs. A. Smith. Gifts given to children and exchange of gifts among members. **Richmond Hill:** Quilt patterns discussed. Publicity convenor had a contest with prizes going to Mrs. J. Hawker and Mrs. V. Smith. Boxes of gifts sent to Dixville Home; Christmas Cheer boxes for shut-ins. A shower of birthday cards for a member.

Richmond Young Women: sent gifts to Dixville Home, held a contest and exchanged Christmas gifts. **Shipton** branch has joined the Federated Charities Organization; donated \$10 and members are working on packaging boxes for the needy. A quilt was brought in for the Cancer Society. Gifts were exchanged. **Spooner Pond:** Roll call: Bring a homemade Christmas card to be judged. Sent birthday gift to a boy at Dixville Home, Christmas gifts will be sent to him and to another 'adopted' boy. Members visited Dennison's Store in Drummondville. Donation made to Welfare Fund at St. Francis High School. Plant given to member and husband on their 55th anniversary. Donated towards Christmas Party at Wales Home. Held demonstration on liquid embroidery. Had a sales table for Ways and Means Committee. Gifts given to pre-school children and members exchanged gifts.

SHERBROOKE: Ascot: Brief talks given by each member who had visited Expo. Check sent to Maplemount Home for the purchase of Christmas

gifts for children there. Advertising space taken in Lennoxville High School's annual publication. **Brompton Road:** worked at Cancer Clinic; catered to a supper; gave Christmas gifts to cancer patients; donated \$10 to UNICEF. **Lennoxville:** Mrs. Russell Wells, R.N. nurse-in-charge at the Lennoxville High School, re: need for children of school age for free dental classes. Hot lunch for the needy children, anti-polio immunization done at the school. Wreath placed at Cenotaph. An article read on smog in Ontario. Roll call was answered with a gift for a cancer patient; French conversation classes are now open with an enrolment of 72. Will sponsor a child for hot lunches for three months. **Milby:** The Cornelia Orr Scholarship given to a pupil in Grade 11 for most improvement. Donation given to Waterville High School for prizes and treats. Two members attended the C.A.C. Demonstration on cutting and saving of meat by the Nichol Brothers at the Scott Hall, Lennoxville.

STANSTEAD: Beebe: Slides of Scotland were shown by Mr. Jack Anderson taken when he and his daughter Sandra spent three weeks there a year ago. Roll call: How to make money for the W.I. auction of articles brought fun and funds. A letter from Mrs. Ossington was read and discussed. **Hatley** Roll call: Name a provincial flower, capital and item of interest. \$25 collected for UNICEF. Wreath placed at Cenotaph. \$10 donated to the Community Christmas Sunday School. Gift of a centennial spoon given to Mrs. Smith and to Miss Coral Smith in appreciation for saleable articles they donated to the W.I. North Hatley voted to pay Q.W.I. Service Fund. Money voted for a gift to a member recently moved to Ontario. Contest of jumbled letters, won by Mrs. Vaughn. Members were dinner guests of the co-president Mrs. Carter at her home for the Christmas meeting — roll call — children's treat. Members donated money and voted that it should go to Maplemount at Cookshire.

VAUDREUIL: Harwood: Christmas music and exchange of gifts enlivened the December meeting. Interesting reports from various convenors. Sum of money voted to supply candy and cookies for Retarded Children's Party.

The Constitution

As Mrs. Ossington, our QWI president, suggested in her last letter to the members, we should study our Canadian constitution. Very few of the people who are arguing these days about rights really know how many we already have.

A quantity was requested (wouldn't you think our federal government could supply them, considering the amount of free literature they churn out?) but not a quantity, not even a copy was forthcoming. We were told we could purchase a copy at the Queen's Printer for 50¢, so we bought a French and an English one. These turned out to be a sort of commentary, with comparisons to other countries' constitutions.

For 75¢ we bought an English and updated (1967) version (no more French available for six months) of the B.N.A. Act with its amendments and additions. We have taken from it the acts concerning the issues most hotly debated today. We have had this multi-lithed and each branch will receive one or two copies. Read them, study them, and you will likely be the BEST AUTHORITY in the community and more power to you . . .



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From the Office

Once more we were all trimmed up with Xmas cards. We (hopefully) last year left the hooks sticking to the walls when we took down the strings of cards, and sure enough, we could use them again this year. Thanks, everyone, and a good, good year to you all. Mrs. Geo. Clarke, FWIC president, presented a copy the new 'Heritage of Canadian Crafts' to Her Excellency, Mrs. Michener, wife of the Governor General. A copy was also sent to Lady Tweedsmuir, a long time friend of Women's Institutes.

I would recommend to members the Northern Lights Bulletin, the magazine of the Institutes of the Northwest Territories and the Yukon — now numbering 14 branches. It is only 50¢ a year and is ordered from the FWIC National Office. It gives very entertaining glimpses of life in our far north and the editor, Mrs. Geo. Wilson, is to be congratulated on a very interesting magazine. Where else could you find out how to make Moose Nose and Pemmican?

It was announced at the FWIC Convention, Guelph, June 1967, that the Adelaide Hunter Hoodless Homestead had had 15,649 visitors. These, the report said, came from Britain, Switzerland, India, Poland, Australia and many other countries, as well as the ten provinces.

It is now completely furnished and much work has been done on the buildings as well as landscaping to make it all more attractive and convenient for the visitors.

How many of you noticed our FWIC pin at the Hospitality Pavilion at Expo in the collection of badges of Canadian women's national organizations?

The Reindeer Harness

(from the Northern Lights)
by Mrs. Ida Aleekuk,
president, Reindeer Stn. WI, N.W.T.

The Canadian Reindeer Project used deer for hauling sleds until a few years ago. This type of harness was developed for use in Alaska and is only practical when used to the open tundra. Two bulls were used, each one being attached by the harness to a sled.

The Lapp harness is constructed so that the tow rope passes through the animal's legs to a sled with a single runner, rather like a canoe. The deer haul one sled each, with the herder in front — similar to a horse pack train.

The Alaskan harness is used no more and there are only two of them left at

the Reindeer Station. One has been donated to the Museum in Inuvik.

Why are they no longer used?

1) The sled deer take a long time to train. This is terms of labour is costly.

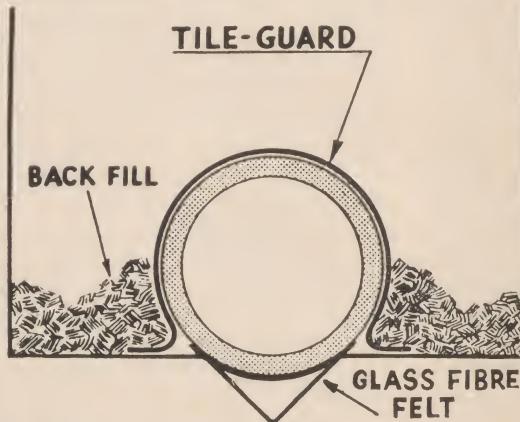
2) The deer must be turned loose every night to feed. Then, the next

morning the whole herd of several thousands has to be rounded up in order to lasso a few sled deer.

3) Dogs are much tougher. They are capable of travelling all day, pulling a heavy load, with just one good rest a day. The deer need to rest after two or three hours.

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